

International Patent Application

Title: "Knife Holder for Comminution Devices"
Applicant: Johann Doppstadt, Vossnackerstrasse 67, D 42555
Velbert
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Claims

1. Knife holder for comminution devices, comprising a tooth body (1) which can be fastened on a comminution cylinder or the like, and at least one knife (2), the knife (2) being able to be attached positive-locking to the tooth body (1), a knife receiving device being provided, **characterised in that** the knife receiving device (3) is designed as recess (4), and, seen from the side, has J-shape, and the recess (4) is designed wedge-shaped or conically, preferably tapering-off to the outside, in such a way that recess surfaces (4/1, 4/2) occur.
2. Knife holder according to claim 1, **characterised in that** the knife (2) is attached to the tooth body (1) in a fixed, releasable way.
3. Knife holder according to one or both of the preceding claims, **characterised in that** at least a part of the knife (2) can be put in the knife holder (3).
4. Knife holder according to one or more of the preceding claims, **characterised in that** the knife holder (3) is arranged at the front end of the tooth body (1) seen in the direction of cutting.
5. Knife holder according to one or more of the preceding claims, **characterised in that** the recess (4) has at its front end, seen in the direction of cutting, a nose (7), and/or the nose (7) of the recess (4) is designed cylinder-like.
6. Knife holder according to one or more of the preceding claims, **characterised in that** a part of the tooth body (1) is designed as supporting body (5).
7. Knife holder according to one or more of the preceding claims, **characterised in that** supporting surfaces (5/1, 5/2) which are wedge-like or run conically to the outside are provided on the side of the supporting body (5) facing the knife (2).

8. Knife holder according to one or more of the preceding claims, **characterised in that** the tooth body (1) and the knife (2) have shapes which correspond with each other.
9. Knife holder according to one or more of the preceding claims, **characterised in that** the tooth body (1) is fastened on, respectively at, the comminution cylinder of the comminution device by welding.
10. Knife holder according to one or more of the preceding claims, **characterised in that** the tooth body (1) can be arranged on the comminution cylinder, in particular angularly staggered to one another on the comminution cylinder.
11. Knife holder according to one or more of the preceding claims, **characterised in that** the tooth body (1) has on its bottom surface, respectively on the surface facing the comminution cylinder, a centering device for centering the cylinder.
12. Knife holder according to one or more of the preceding claims, **characterised in that** the centering device of the tooth body (1) is designed as groove or tongue, which interacts with a tongue or groove provided on the comminution cylinder in a corresponding and positive-locking way.
13. Knife holder according to one or more of the preceding claims, **characterised in that** tooth body (1) and knife (2) have fastening means by means of which they can be fastened to each other in a fixed, releasable way, and/or that the fastening means is presented by at least one screw connection which is guided by borings (8) in the tooth body (1) and in the knife (2), and/or the boring (8) has a preferred diameter of 23 mm.
14. Knife holder according to one or more of the preceding claims, **characterised in that** the tooth body (1) and/or the knife (2) are made of metal, preferably as castings.
15. Knife holder according to one or more of the preceding claims, **characterised in that** the side surfaces of the tooth body (1) taper off diagonally upward, taper, respectively taper off to the outside radius and/or the tooth body (1) is designed narrower opposite the cutting direction than at the cutting edge.

16. Knife holder according to one or more of the preceding claims, **characterised in that** the outside radius of the tooth body (1) cuts on its side opposite to the knife-receiving device (3) the outside radius of the comminution cylinder.
17. Knife holder according to one or more of the preceding claims, **characterised in that** the knife receiving device (3) is designed in such a way that knives (2) of differing shapes, for example triangle, rectangular or polygon knives (2), can be put in, respectively attached.
18. Knife holder according to one or more of the preceding claims, **characterised in that** the knife (2) is designed as tooth (9), and/or the tooth (9) has a knife-edge (10), and is designed concave on the side (11) orientated in the direction of cutting.
19. Knife holder according to one or more of the preceding claims, **characterised in that** the tooth (9) has a radius on its side (12) opposite to the tooth body which cuts preferably the radius of the cylinder, respectively the cylinder body, and/or the radius on the side (12) opposite the tooth body can be adapted to differing heights of teeth.
20. Knife holder according to one or more of the preceding claims, **characterised in that** at the tooth (9) a supporting region (13) is provided, which is supported by the supporting body (5) of the tooth body (1), and/or at the supporting region (13) supporting surfaces (13/1, 13/2) running conically, respectively wedge-like, are provided, and/or the tooth (9) is designed wider than the tooth body (1), in such a way that the result is free cutting.
21. Knife holder according to one or more of the preceding claims, **characterised in that** the tooth (9) is designed conically, respectively wedge-like, on the sides facing the tooth body corresponding with the recess surfaces (4/1, 4/2) and the supporting surfaces (5/1, 5/2), in such a way that auto-centering is the result of the positive-locking connection during fastening the tooth (9).
22. Knife holder according to one or more of the preceding claims, **characterised in that** two surfaces facing the tooth body (1) and orientated downward to the recess (4) are designed as recess counter faces (17/1, 17/2), and the inclination of these surfaces corresponds with those of the recess surfaces (4/1, 4/2).

23. Knife holder according to one or more of the preceding claims, **characterised in that** two faces facing the tooth body (1) and orientated horizontally are designed as supporting counter faces (15/1, 15/2), and the inclination of these surfaces corresponds with those of the supporting surfaces (5/1, 5/2).
24. Knife holder according to one or more of the preceding claims, **characterised in that** two faces facing the placing surfaces (8/1, 8/2) are designed as placing counter faces (13/1, 13/2) and have a corresponding inclination.
25. Knife holder according to one or more of the preceding claims, **characterised in that** the tooth (9) has a placed-upon knife-edge (10) which is made preferably from hard metal, and/or the size of the tooth (9) can be adapted because of differing comminution problems, and preferably the height, measured between the tip of the knife-edge (10) and the outside radius of the comminution cylinder, has between 100 mm and 200 mm.
26. Knife holder according to one or more of the preceding claims, **characterised in that** the tooth (9) has at least one hardened region (14) on its edges orientated in the direction of cutting, and/or the hardened region(s) (14) have been obtained by arming or welding-on, and/or the tooth (9) is designed in two pieces from the first cutting body (9/1) and the second cutting body (9/2).
27. Knife holder according to one or more of the preceding claims, **characterised in that** the first cutting body (9/1) is flat, respectively plane, on the side facing the second cutting body (9/2).
28. Knife holder according to one or more of the preceding claims, **characterised in that** the second cutting body (9/2) is disc-like and/or provided with an opening (71), which embraces in built-in condition the nose (7), and/or the second cutting body (9/2) is designed as interchangeable disc (101), and/or the interchangeable disc (101) has a preferred thickness of 20 mm, and/or the interchangeable disc (101) has the shape of a triangle which is flattened on the side on top in built-in condition in such a way that the interchangeable disc (101) has the shape of a trapezoid.

29. Comminution device with at least one knife holder according to one or more of the preceding claims.
30. Comminution device according to claim 29, **characterised by** a number of knife holders which are arranged on the comminution cylinder, in particular staggered to each other.

Patent Attorney